

**DEPARTMENTAL INPUT**  
**CONTRACT/PROJECT MEASURE ANALYSIS AND RECOMMENDATION**

☐ New   ☐ OTR   ☐ Sole Source   ☐ Bid Waiver   ☐ Emergency   Previous Contract/Project No. [REDACTED]  
Contract  
☐ Re-Bid   ☒ Other   Accessing other entity contract   LIVING WAGE APPLIES: ☐ YES   ☒ NO  
Requisition No./Project No.: ROAV1100057   TERM OF CONTRACT: 1 YEAR   WITH [REDACTED] YEAR(S) OTR  
Requisition /Project Title: MIA Water Valve System Maintenance & Repair


Description: MIA needs to assess, test, collect data and perform preventative and corrective maintenance on all valves and fire hydrants in their water distribution system. Accessing Ft. Lauderdale contract 473-9744 will allow MIA to start the process much faster than having to do a new bid.

Issuing Department: MDAD   Contact Person: Neivy Garcia   Phone: 305-876-8482  
Estimate Cost: \$180,000.00   GENERAL   FEDERAL   OTHER  
Funding Source: [REDACTED]   [REDACTED]   Proprietary

**ANALYSIS**

<b>Commodity Codes:</b> 936-91   934-37   934-64   [REDACTED]   [REDACTED]			
Contract/Project History of previous purchases three (3) years Check here <input checked="" type="checkbox"/> if this is a new contract/purchase with no previous history.			
	<b>EXISTING</b>	<b>2<sup>ND</sup> YEAR</b>	<b>3<sup>RD</sup> YEAR</b>
<b>Contractor:</b>	[REDACTED]	[REDACTED]	[REDACTED]
<b>Small Business Enterprise:</b>	[REDACTED]	[REDACTED]	[REDACTED]
<b>Contract Value:</b>	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
<b>Comments:</b> [REDACTED]			
Continued on another page (s): <input type="checkbox"/> YES <input type="checkbox"/> NO			

**RECOMMENDATIONS**

	Set-aside	Sub-contractor goal	Bid preference	Selection factor
<b>SBE</b>	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
<b>Basis of recommendation:</b> [REDACTED]				
Signed: 		Date sent to DBD: <u>12/03/2011</u>		
Denis Chung		Date returned to DPM: [REDACTED]		

Revised April 2005

RECEIVED  
DEPT. BUSINESS DEV.

2011 NOV 32 AM 11:50

**ORIGINAL****COMMISSION AGENDA REPORT**

COMMISSION MEETING DATE:

10-04-2011

AGENDA ITEM:

PUR-01

COMMISSION REPORT NO:

11-1264

PREPARED BY:

Albert Carbon 08-24-2011 09:53:12

DEPT: Public Works

DEPARTMENT DIRECTOR'S SIGNATURE

Julie Leonard, Assistant Utilities Services Director - Operations, 954-828-7802

AUTHOR'S NAME, TITLE, AND TELEPHONE NUMBER

Lee R. Feldman 09-26-2011 16:59:45

CITY MANAGER'S SIGNATURE

TITLE 1:

473-9744 - WATER VALVE AND FIRE HYDRANT MAINTENANCE SERVICES - \$350,000

TITLE 2:

SUBJECT:

Purchase water valve and fire hydrant maintenance services.

REQUESTED ACTION (STAFF RECOMMENDATION - CONTENT OF MOTION):

Motion to approve.

☒ REGULAR AGENDA☐ CONFERENCE☐ Motion☐ Motion for Discussion☐ Old/New Business☐ City Commission Reports☐ Public Hearing☐ Ordinance☐ Exec Closed Door☐ City Manager Reports☐ Resolution☐ Presentation☐ Conference Reports☒ Purchase☐ Citizen Presentation☐ Advisory Boards☐ Consent Resolution

Public Notice Advertised:

FUNDS APPROPRIATION/TRANSFER (provide index code, subobject, and title of subobject):

See Exhibit 1 for funding details.

**FOR PROCUREMENT ITEMS ONLY**

PROCUREMENT REFERENCE NO:

473-9744

TRANSACTION TYPE:

Purchase

BIDS SOLICITED/RECEIVED:

N/A

WBE:

N/A

LATE BID:

N/A

Vendor:

MBE:

N/A

NO BID:

N/A

Wachs Valve and Hydrant Services, LLC  
Buffalo Grove, IL

Amount: \$350,000.00

Details: Not to Exceed

Procurement Recommendation:

The Procurement Services Department has reviewed this item and recommends approval of this renewal.

**Description of Exhibits:**

1. Funding Details	2.	3.
4.	5.	6.
7.	8.	9.

**EXHIBITS: AVAILABLE VIA HARDCOPY:** Exhibit #s: **PRIOR COMMISSION/BOARD ACTION:** (attach additional file if necessary)**BACKGROUND/DETAIL:**

This is a recommendation to renew a one-year contract with Wachs Valve and Hydrant Services, LLC for water valve and fire hydrant maintenance services.

The Distribution and Collection Division of the Public Works Department is responsible for the maintenance of 900 miles of water and sewer lines throughout the City. Over 18,000 valves and fire hydrants contained in this system must be periodically operated to control these lines. Florida Administrative Code (FAC) 62-555 requires the utility to maintain a valve exercising program.

The City sought an experienced contractor to meet the requirements imposed by the State of Florida in 2006. In 2007, the City selected Wachs Valve and Hydrant Services, LLC using the approved procurement process, a request for proposals (RFP). In 2009, the City successfully negotiated the unit pricing down from \$123.25 to \$70.00, which is a 43 percent savings over the 2007 pricing. We have maintained this pricing for FY 2011/2012. The current expenditure is approximately \$350,000 per year, which equates to 5,000 valves per year. Historically, services have only been provided on valves. The City continues to receive excellent service from Wachs Valve and Hydrant Services, LLC as they have proven to be a competent contractor.

Staff recommends City Commission approve a one-year contract renewal in the not-to-exceed amount of \$350,000 to Wachs Valve and Hydrant Services, LLC for the period of September 6, 2011 through September 5, 2012.

**Attorney's Initials:**



Contract No.: 473-9744

**Agreement to Supply: WATER VALVE & FIRE HYDRANT MAINTENANCE SERVICES**

This agreement, made and entered into this the \_\_\_\_\_ day of \_\_\_\_\_, 2007, is by and between the **CITY OF FORT LAUDERDALE**, a Florida municipality, City Hall, 100 North Andrews Avenue, Fort Lauderdale, FL 33301, hereinafter called the "City" and Contractor:

Name: Wachs Valve and Hydrant Services, LLCAddress: 600 Knightsbridge Parkway City: Lincolnshire State: IL Zip: 60069A Corporation ☐ A Partnership ☐ An Individual ☐ Other: Limited Liability Company

authorized to do business in the State of Florida, hereinafter called the "Company" or "Contractor." Witnesseth that: Whereas, the City did advertise and issue a Request for Proposal (RFP) for supplying the requirements of the City for the items and/or service listed above for a period of **one year with four one-year extension options** and the Contractor submitted a proposal that was accepted and approved by the City.

Formal authorization of this contract was adopted by the City Commission on: September 5, 2007 Pur-6

Now, therefore, for and in consideration of the mutual promises and covenants herein contained, the parties covenant and agree as follows:

1. The Company agrees to provide to the City water valve & fire hydrant maintenance services during the period beginning 09/06/07 and ending 09/05/08 for the requirements listed above and according to the following specifications, terms, covenants and conditions:

a. This contract form G-110, the Request for Proposal containing General Conditions, Special Conditions, Specifications, addenda, if any, and other attachments to RFP Number **473-9744**, and the Contractor's proposal in response to the RFP form a part of this contract and by reference are incorporated herein.

b. In construing the rights and obligations between the parties, the order of priority in cases of conflict between the documents shall be as follows:

- 1) This contract Form G-110, Rev. 12/00
- 2) The City's RFP and all addenda thereto
- 3) Contractor's proposal in response to the City's RFP

c. **Warranty:** The Company by executing this contract embodying the terms herein warrants that the product and/or service that is supplied to the City shall remain fully in accord with the specifications and be of the highest quality. In the event any product and/or service as supplied to the City is found to be defective or does not conform to specifications the City reserves the right to cancel that order upon written notice to the Contractor and to adjust billing accordingly.

d. **Cancellation:** The City may cancel this contract upon notice in writing should the Contractor fail to reasonably perform the service of furnishing the products and/or services as specified herein upon 30 days written notice. This applies to all items of goods or services.

e. **Taxes Exempt:** State Sales (#85-8012514506C-7) and Federal Excise (#59-600319) Taxes are normally exempt, however, certain transactions are taxable. Consult your tax practitioner for guidance where necessary.

f. **Invoicing:** Contractor will forward all invoices in duplicate for payment to the following: Finance Department, 100 N. Andrews Avenue, 6th Floor, Fort Lauderdale, FL 33301. If discount, other than prompt payment terms applies, such discount **MUST** appear on the invoice.

2. **Contract Special Conditions:** The following special conditions are made a part of and modify the standard provisions contained in this contract Form G-110.

The paragraph titled "Liability," contained on Page 57 of the Contractor's response to the RFP, is deleted.

3. **Contract Summary:**

a. Attachments:

Wachs Valve and Hydrant Services, LLC's response to the RFP and a copy of the RFP document.

b. Payment Terms:

Per RFP; not to exceed \$400,000 total

c. Delivery:

Per RFP

d. Insurance:

Yes ☒

No ☐

e. Performance Bond/Letter of Credit:

Yes ☐

No ☒

f. Procurement Specialist's Initials:

DN

4. **Contractor's Phone Numbers:**

Office: 847-484-2670

Toll free: 800-525-5821

5. **Contractor's Fax Number:**

847-484-2671

6. **Contractor's E-Mail Address:**

wade@wachsus.com

Website: www.WachsUS.com

**City of Fort Lauderdale**

By:

Director of Procurement Services (City Manager's Designee)

Auth: Sec. 2-180(8) of Code and Procurement Memo No. 04-03

Date:

Approved as to form:

Senior Assistant City Attorney

**Contractor/Vendor**

WACHS VALVE AND HYDRANT SERVICES

Name of Company Officer (please type or print)

By:

Authorized Officer's Signature

Title:

PRESIDENT

Date:

1/31/08

Attest:

Secretary (please type or print)

Signature of Secretary



CONTRACT  
COPY

# City of Fort Lauderdale

## Water Valve & Fire Hydrant Maintenance Program



Proposal presented by:  
**Wachs Utility Services**



25 April 2007

David Nash  
Procurement Specialist II  
949 NW 38<sup>th</sup> St.  
Fort Lauderdale, FL 33309

**Subject: Water Valve & Fire Hydrant Maintenance Program**

Dear Mr. Nash,

Wachs Utility Services is excited about the opportunity to significantly improve the operability and reliability of the Fort Lauderdale water system through the Water Valve & Fire Hydrant Maintenance Program. Wachs is the national expert at water valve and fire hydrant maintenance and management and has conducted similar programs in Baltimore, Washington, Charlotte, Clarksville, Wilmington, Raleigh and many other communities. We have the experience, processes, procedures, equipment and know-how to make this program a resounding success for Fort Lauderdale. We look forward to bringing our specialized skills, best practices and dedication to the Fort Lauderdale water system.

Through our extensive experience in hundreds of water systems across the county, Wachs Utility Services has a unique understanding of the City of Fort Lauderdale's needs. We understand how to most efficiently and effectively assess, improve, repair, document and analyze water distribution system components in order to provide a more reliable, cost effective and customer service focused system. Wachs Utility Services works solely on distribution efficiency programs and through our years of experience we have developed best practices that have resulted in detailed operating procedures and field and information management processes. We will use state of the art equipment and technology in conjunction with our management processes to deliver a successful Water Valve & Fire Hydrant Maintenance Program. Our reputation is unsurpassed in the industry.

We also understand the importance of water conservation in the state of Florida and we are experts in the field of leak detection. In order to increase the efficiency of this program, apply our recognized best practice and provide an additional important benefit we will simultaneously conduct an integrated comprehensive leak sounding survey at no additional cost. Our team is dedicated to the continuous development of new technologies and methodologies that will directly benefit the City of Fort Lauderdale.

Wachs Utility Services is proud of our capabilities, dedication and the results we provide to our customers. Our proposal for the Water Valve & Fire Hydrant Maintenance Program is attached. If you have questions or comments on any part of our proposal, or need more detail, please do not hesitate to let me know. We look forward to the opportunity of serving Fort Lauderdale.

Sincerely,

Paul Schumi  
Wachs Utility Services



## **Table of Contents**

### ➤ **Narrative**

- Understanding of Fort Lauderdale's needs
- Overall Approach
  - Program Objectives
  - Program Criteria
  - Coordination
  - Scheduling
  - Execution of Work
  - Operating Limits
  - Contractor Responsibilities
  - Additional Program Activities
- Specialized Equipment
- Specialized Information Management Processes
  - Valve and fire hydrant database
  - Quality Control
  - Trimble Software
  - GIS Software
  - Leak Sounding
  - Analysis
  - Torque Charts
  - Work Order Information

### ➤ **Professional Licenses and Certificates; Insurance**

- Insurance
- Training
- Operations Manual

### ➤ **Company Profile**

- History
- Services
- Information

### ➤ **Disputes, Litigation and Defaults**

### ➤ **Qualifications / Experience**

- Qualifications
- Credentials
- Capabilities
- Hanson Integration
- Challenges and Solutions
- Catastrophic Leak Isolation

### ➤ **References**

### ➤ **Staff**

- Key Staff Credentials
- Fort Lauderdale Program Personnel

### ➤ **Basis for Program Pricing**





## **Narrative**

### **Understanding of Fort Lauderdale's Needs**

Wachs Utility services is the national expert at water valve and fire hydrant evaluation, improvement and information management and has conducted similar programs in Baltimore, Washington DC, Charlotte, Clarksville, Wilmington, Raleigh and many other communities across the nation. We understand the pressures that Fort Lauderdale is under to provide clean, safe and reliable water for your customers at a reasonable price. We also understand, intimately, how important operable valves, fire hydrants and precise and meaningful information are to providing these services. We have the experience, processes, procedures, equipment, best practices and know-how to insure that Fort Lauderdale receives maximum value from this program.

We also understand the importance of water conservation in the state of Florida and we are experts in the field of leak detection. In order to increase the efficiency of this program, apply our recognized best practice and provide an additional important benefit we will simultaneously conduct an integrated comprehensive leak sounding survey at no additional cost. Our team is dedicated to the continuous development of new technologies and methodologies and will apply all of our learnings to the benefit of the City of Fort Lauderdale.

Through our extensive experience in hundreds of water systems across the county, Wachs Utility Services has a unique understanding of the City of Fort Lauderdale's needs. We understand how to most efficiently and effectively assess, improve, repair, document and analyze water distribution system components in order to provide a more reliable, cost effective and customer service focused system. Wachs Utility Services works solely on distribution efficiency programs and through our years of experience we have developed best practices that have resulted in detailed operating procedures and field and information management processes. We will use state of the art equipment and technology in conjunction with our management processes to deliver a successful Water Valve & Fire Hydrant Maintenance Program. Our understanding of the concerns and needs of Fort Lauderdale and our reputation is unsurpassed in the industry.

### **Overall Approach**

Wachs Utility Services has executed similar programs for a number of different utilities. We understand the necessary processes, procedure and industry best practices that will be used to insure this program is a success for Fort Lauderdale. The overall process for the Fort Lauderdale Water Valve & Fire Hydrant Maintenance Program will be fully delineated in the Fort Lauderdale Criteria. Wachs Utility Services will plan and execute an integrated distribution system evaluation, improvement and information program that will exceed the expectations you set forth in the request for proposals. We will develop, plan and execute a program to inspect, assess, exercise, document, perform minor repairs and map water distribution system valves and hydrants. Additionally we will apply our best practices to the analysis of this critical data so

that you will have information that is actionable and useful, not only in the short term, but also in the long term as you plan capital improvement programs and further system enhancements. We understand what works for these programs and will work closely with Fort Lauderdale personnel in order to integrate best practices into this program in order to insure its success. The methodology topics included in this section are:

- Program objectives
- Program criteria
- Coordination
- Scheduling
- Execution of work
- Operating limits

### **Program Objectives**

We find it useful to summarize the specific objectives of any program up front. This joint process insures clarity and insures that we are all focused on the main goals. The main objectives of this program are to:

- Evaluate the valves and fire hydrants in the distribution system
- Improve the operability of valves and fire hydrants in the distribution system
- Document valve and fire hydrant attributes and GPS locations
- Link this documentation with existing Fort Lauderdale systems
- Provide detailed work orders for major valve and fire hydrant repairs and replacements
- Analyze the results of the program
- Provide program findings, learnings and recommendations

In our experience it is important to clearly define the program objectives in order to increase the efficiency, effectiveness and benefits of the program.

### **Program Criteria**

Wachs Utility Services understands the complexity of a water valve and fire hydrant maintenance program and brings proven processes, methods, procedures and industry best practices which will insure the most improvement in operability and information in the Fort Lauderdale system. In order to align the program to achieve the objectives of Fort Lauderdale, Wachs Utility Services will establish a written "Program Criteria". The Program Criteria will document--in advance of information and field operations--the objectives, processes, procedures, communications and deliverables for the program. The draft Program Criteria will be discussed and agreed with Fort Lauderdale in order to insure clarity and increase the efficiency of the program. We have created similar criteria for other important programs. Establishing the program criteria PRIOR to operation insures clean expectations and provides a framework for the entire program. We would be happy to share example criteria with Fort Lauderdale in a private session. The format for the Program Criteria will be:

- Statement of the objectives of the program

- Statement of the deliverables of the program
- Phasing of the Program
- Operating procedures for valve exercising
- Operating procedures for fire hydrant operations
- Operating limits for valve exercising
- Database format
- Data definitions
- Data collection procedures
- Data delivery schedules
- Information management processes
- Data QA process
- Communications plan

Wachs Utility Services will take ownership of creating the Criteria for the Fort Lauderdale Water Valve & Fire Hydrant Maintenance Program. We believe this is a critical initial step in the successful completion of Fort Lauderdale's Program.

## **Coordination**

### Operations Meetings

Coordination with the Fort Lauderdale, Engineering, City and County Agencies and the State are critical to the successful execution of a valve assessment and information program. In order to foster strong communications Wachs will host regular Program Operations Meetings. We find the most value in having these discussions every two weeks.

### Reports

In addition to regular operations meetings we strongly suggest that written reports—which detail activities, findings and recommendations—be developed and delivered to Fort Lauderdale. These reports which document overall progress and findings as well as specific challenges and solutions, which should be on an annual basis at a minimum, will insure a written record of the program and form the basis for future decisions by Fort Lauderdale.

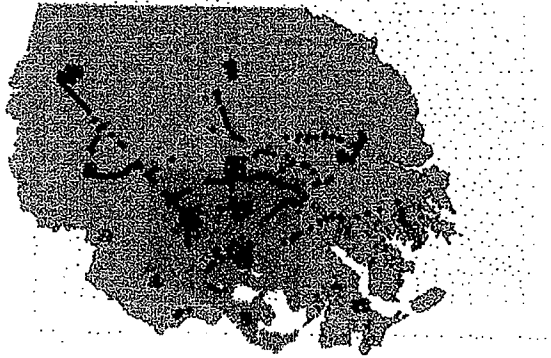
## **Scheduling**

### ***Pilot in a Program***

We believe a "Pilot in a Program" is an excellent way to verify processes, communications, understandings and deliverables in a long term program. Wachs will execute a "pilot in a program" at the commencement of work. The pilot will consist of planning and valve and fire hydrant locating, inspecting and operations for two weeks. We will then analyze the operating and GPS data and test the data delivery process. Additionally we will test all coordination, communication and reporting processes. At the completion of this period of operations we will host a process review to insure that all of the Fort Lauderdale's needs are fully satisfied.

### ***Program Schedule***

At the completion of the "pilot in a program" we will make any adjustments necessary and begin full program operations. Each area will be completed in a pre-determined path, which will be plotted on Fort Lauderdale's maps, and will be reviewed at the operations meetings. The overall process will be conducted in accordance with the Wachs Operations Manual, which contains operating, data management and maintenance procedures. As the program progresses, we will track progress on Fort Lauderdale's GIS. This gives a visual representation of the areas we have worked as well as the results of the program. The following GIS screen shot shows a summary of operations for Baltimore. We will use a similar management process for Fort Lauderdale.



Executing the work in a pre-planned coordinated manner while following written procedures will;

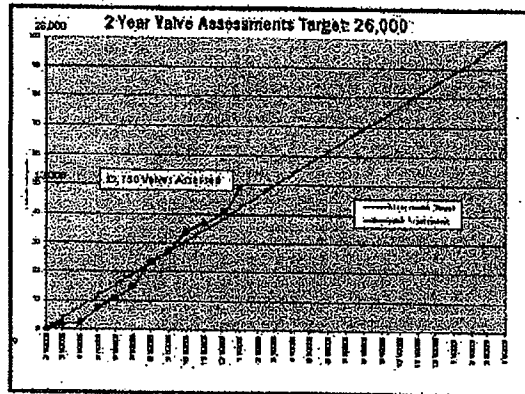
- Reduce the amount of traffic disruption
- Reduce the disturbance of the water system
- Standardize the maintenance activities to insure
  - Each valve activity is performed in the approved, safe manner
  - Consistent data is collected on all valves
- Reduce the crew work area set-up and take down time
- Reduce the amount of crew transit time

Scheduling is an ongoing, critical process for the successful completion of this program. In our view, it is best to drive the program scheduling on a planned basis by always looking forward and being prepared for contingencies. The program criteria will have a full schedule for the entire program, the initial data acquisition and data entry as well as valve and fire hydrant assessment and exercising. This schedule will be the basis for starting up the program and provide a measurement point for progress.

On a monthly basis the team will review the overall program plan and detail the next month's activities. We will pull maps in advance, research records, pull valve cards and review other construction and maintenance activities in the planned area. Additionally we will establish critical valves (those valves whose failure could significantly impact the utility, such as valves near hospitals, large businesses, etc.). On a weekly basis we will execute the service activities

in the planned areas. Before field activities commence in any area the maps will be reviewed by the program manager, the Wachs Pre Planned Map Review (a pre-established set of analyses to be conducted on the assessment area BEFORE field work commences) will be completed and all critical valves and isolation traces for catastrophic isolation plans will be discussed.

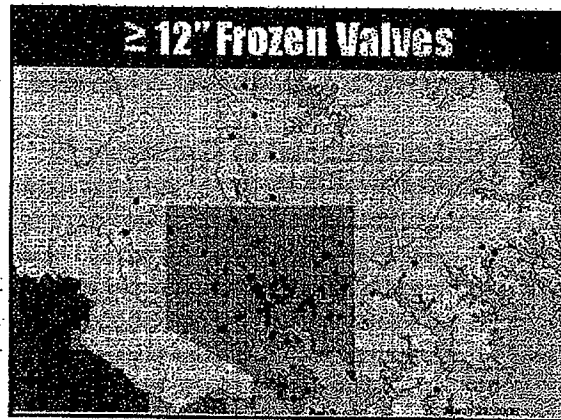
As the program progresses, we will track progress versus established targets. An example tracking method is noted below:



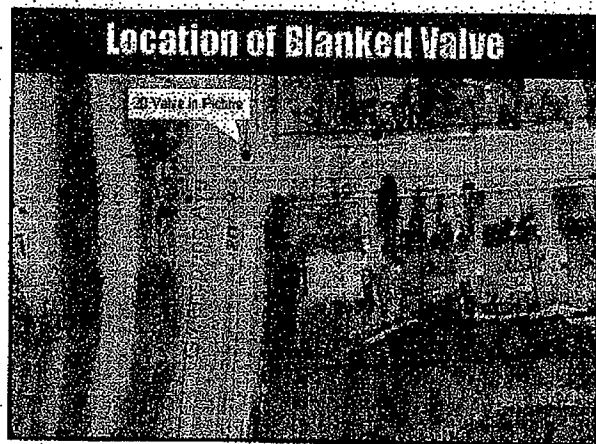
Additionally, we will track the program progress geographically. This gives a visual representation of the areas we have worked as well as the results of the program. The following GIS screen shot shows a summary of operations for Baltimore.



In addition to overall program tracking, Wachs Utility services will track and manage program learning's both graphically and in a tabular format. This clarity of information delivery allows Fort Lauderdale to focus on the solutions rather than a mountain of data.



We will also use a combination of Fort Lauderdale's water system maps and over flight photos in order to highlight specific issues.



## **Execution of Work**

Executing the work in a pre-planned coordinated manner while following written procedures will;

- Reduce the amount of traffic disruption
- Reduce the disturbance of the water system
- Standardize the maintenance activities to insure
  - Each valve activity is performed in the approved, safe manner
  - Each hydrant activity is performed in the approved, safe manner
  - Consistent data is collected on all valves and hydrants
- Reduce the crew work area set-up and take down time
- Reduce the amount of crew transit time

Examples of phases of the program are noted below:

### *Work Area Traffic Control*

All crew personnel are trained in specific traffic control. Crews will be provided traffic control signs, rotating warning lights, corner strobe lights, cones, traffic arrow boards on the trucks and will use these traffic control tools to set up a safe workplace. If traffic control is very difficult in certain areas then Wachs may shift to night operations (for ease of traffic control) or request assistance by Fort Lauderdale for "significant traffic control". Significant traffic control is where multiple lanes are disrupted, a full intersection is disrupted or a two lane road is narrowed to a single lane. In our experience we find that our conventional traffic control will achieve over 99% of all circumstances we find in the field.

### *Locating valves*

Wachs Utility Services will use a variety of tools, techniques and information to locate the Fort Lauderdale valves in the field. Prior to going to the field Wachs will evaluate the existing Fort Lauderdale maps, over flight photos and any existing valve cards. Tools available in the field will include metal detectors, probing rods, measurement devices (to compare footages from maps) and frost bars to remove skimmed asphalt. Wachs will search for valves, on the first pass, for approximately fifteen minutes with all of the information and tools noted above. If the valve can not be found in that amount of time a work order will be created and the valve will be noted as "can not locate". In preparation for completing the work order, if Fort Lauderdale chooses for Wachs to complete this work order outside of the framework of the existing contract, (finding the valve on a second pass) Wachs will investigate additional information (such as as-builts) and use additional tools if necessary (such as line locators and depth detectors). With this additional information and tools virtually all valves that are actually in the system will be located.

### *Clean out valve box as required to safely operate valve*

Our operating procedures require that the valve box be free of debris and water and that the valve operating nut be clearly visible before the valve is exercised. This provides for accurate inspection and prevents debris in the box from causing a valve failure. Wachs will use industrial strength vacuums in order to insure that all debris and water is removed from the box before the

valve is inspected and operated. If a valve is in a vault, the vault will be dewatered using our water pumps in the most efficient manner.



Operate valve using approved valve operating equipment

Wachs Utility Services maintains written procedures for assessing and exercising any size or type of valve. These procedures (which will be incorporated into the Fort Lauderdale criteria) delineate the torque limits, equipment to be used and sequence of activities of each valve operation. These procedures are maintained in our Wachs Utility Services Operations Manual. Wachs Utility Services manages torque carefully through equipment selection, process and procedure. This combination of established process, best practice and experience delivers a very low valve failure rate (typically less than  $\frac{1}{2}$  of 1% of all valves operated).





Repeat the close and open operations at least one more time (minimum of two full cycles) and exercise the valve additional cycles if it operates at greater than 200 ft-lbs of torque or does not attain the expected number of turns

Every valve will be exercised a minimum of two full cycles. If the torque required to exercise the valve decreases or the turns achieved during a cycle increases, the valve will continue to be exercised until the torque and turns stabilize. Wachs will exercise the valve up and down, up and down, a few turns at a time in order to clear the valve of debris and lubricate the valve. For some valves, especially larger valves, this may require many cycles, however, in order to safely increase the operability of the valves this is our strongly recommended approach.

Electronically record valve information (such as valve ID number, size and type, position coordinates to an accuracy of not less than 3 feet in latitude and longitude, turning torque, number of turns and direction of turns to close and open the valve, etc.)

Data collection will be conducted using the Wachs TM-7DT valve exerciser, the Trimble GeoExplorer, digital cameras and infrared cameras. The Trimble GPS/data recorder will be the primary data collection tool (in order to capture the GPS position as well as the attributes of each valve) while the TM7-DT will record the operating cycle on large and difficult valves. A full data dictionary will be created, in Pathfinder Office and transferred to the Trimble data collection device. This data dictionary will include drop down menus and checking routines in order to insure that the data collected is accurate and precise. The data will be downloaded daily and the GPS positions will be post processed in order to further improve the accuracy. Digital pictures will be taken of unusual conditions. The database will combine these data sources so that each valve and fire hydrant will have a respective record and digital pictures (if an unusual situation exists).

Return valve to its original position.

We typically find 3% to 10% of the valves in a distribution system to be closed (not including pressure zone boundary valves that should be closed). This is due to a number of factors (leaving valves shut after shutdowns, contractors, etc). We will find valves that are closed in the Fort Lauderdale system. We will notify Fort Lauderdale when we detect a valve is closed, insure the valve should in fact be open, flush the area to remove debris collected in the unintended dead ends and then open the valve (this process is delineated in the Criteria).

## **Operating Limits**

In our experience it is critical to agree and set operating limits for all valve operations. For valve operations a critical operating limit is the maximum torque allowed on different types of valves. This limitation is critical in order to maintain a controlled operation and reduce the number of valve failures. Wachs Utility Services maintains recommended torque limit standards for every size and type of valve. These limits are included in our operations manual and will be discussed and agreed with Fort Lauderdale and be included in the Program Criteria.

Additionally, we strongly suggest limits on the GPS data collection process, such as the rise of satellites above the horizon, maximum PDOP levels, minimum number of satellites, minimum number of satellite fixes and post processing accuracy limits. All of these limits and set points

are important in order to attain quality positions from the GPS equipment. We will use the limits and set points specified in the request for proposals.

### **Contractor Responsibilities**

#### *Locate the Valves and Fire Hydrants*

Wachs Utility Services will use all of the information available (maps, GIS plots, ortho photos, etc) in concert with our proven field processes and procedures in order to search for the valves and fire hydrants in the distribution system. If a valve can not be found, after searching for fifteen minutes, a work order will be prepared and the asset noted as a "cannot locate". While outside of the current scope of work identified in the request for proposal (and therefore outside of our proposed pricing structure), if desired by Fort Lauderdale, Wachs can further research additional information (such as as-builts) and use advance tools (such as line locators) to take action on these work orders.

#### *Identify the valve and fire hydrants*

Wachs Utility Services will use a unique identifier for each fire hydrant and valve encountered in this program. Each unique identifier will be linked to the asset ID maintained by Fort Lauderdale. In our experience there are different ways to manage this process and we will work with Fort Lauderdale information management personnel to select the method that is most efficient. If a hydrant or valve is found in the system that does not have an ID, Wachs Utility Services will provide one using a pre-approved sequence.

#### *Access the valve and fire hydrants*

The valve cover shall be removed by Wachs Utility Services in order to access the valve. We will implement a best practice where, if after attempting to remove the valve cover it is clear that the cover is "stuck", the cover will be broken, the valve accessed and the cover replaced. This action increases the efficiency of the overall program and reduces rework. Covers are to be provided by the City of Fort Lauderdale.

#### *Clean out valve box and vaults*

Wachs Utility Services will vacuum out debris and pump out water from the valve box or vault in order to allow access to the valve operating nut. In order to provide this service Wachs Utility Services will provide a vacuum and water pump with every work crew.

#### *Inspection*

##### *Fire Hydrant*

Wachs Utility Services will execute a visual inspection of the fire hydrant. The specific inspection information to be documented is noted in the documentation section.

##### *Valves*

Wachs Utility Services will execute a visual inspection of every valve, valve box or valve vault. The specific inspection information to be documented is noted in the documentation section.

#### *Valve exercising*

Wachs Utility Services will operationally test and exercise each valve a minimum of two full cycles. Valves will continue to be exercised until the turns on the valve no longer increase and the torque required to operate the valve no longer decreases. All isolation valves will be exercised slowly with the minimum torque required so as to minimize the possibility of damaging the valve or creating water hammer. Specific valve exercising procedures and torque limits will be included in the Fort Lauderdale Criteria.

#### *Fire hydrant flow test and preventative maintenance*

Wachs Utility Services will mechanically test; pressure test and flow test each fire hydrant. The mechanical inspection includes removing, greasing and replacing all caps, slowly opening and bleeding the air out of the fire hydrant and pressurizing the barrel at full system pressure. The static pressure test will be conducted with the fire hydrant charged at full system pressure and any leakage will be documented. The flow test will be conducted by opening the cap, affixing a diffuser and residual gauge and slowly opening the fire hydrant to the full open position. At the completion of the hydrant flow test, the fire hydrant will continue to be flowed until the water becomes clear. At this time the fire hydrant will be slowly closed, drainage of the fire hydrant will be observed, caps will be re-affixed and the area will be fully restored. The specific operational testing information to be documented is noted in the documentation section.

#### *Valve marking*

Wachs Utility Services will mark valve lid covers with blue marking paint as the inspection and exercising process is completed. Additionally, a brass plate indicating the size of the valve and the number of turns will be affixed to the valve lid.

#### *Minor Repairs*

Wachs Utility Services will complete minor repairs as they are encountered throughout this program.

#### *Valves*

The minor repairs specified in this program consist of raising valve boxes in asphalt, raising valve boxes in dirt and re-aligning valve boxes. Additional needed repairs will be fully documented in a work order and delivered to the City. While outside of the current scope of work identified in the request for proposal (and therefore outside of our proposed pricing structure), if desired by Fort Lauderdale, Wachs can complete many additional repairs to valves as we have extensive experience in repairing valves from 2" up to 72".

#### *Fire Hydrant*

The minor repairs specified in this program consist of replacing the stem and replacing the breakaway coupling. Additional repairs to fire hydrants will be completed as agreed. While outside of the current scope of work identified in the request for proposal (and therefore outside of our proposed pricing structure), if desired by Fort Lauderdale, Wachs can complete many additional repairs to fire hydrants as we have extensive experience in repairing many makes and models.

#### *Fire Hydrant Preservation and Painting*

Wachs Utility Services will mechanically clean and paint fire hydrants that require preservation. The process shall include: setting up safe traffic control; setting up paint shield and drop cloths; clearing debris from the base area of the fire hydrant; using electric paint removal tools and wire wheels to remove any loose or caked paint and existing rust that is on the fire hydrant; wiping down the entire hydrant and applying a high quality top coat of Rustoleum Safety enamel paint or equivalent. All hydrants are to be painted one solid color as agreed with the City of Fort Lauderdale.

#### *Leak Sounding*

Wachs Utility Services will provide specialized sonic audio listening devices and skilled operators to effectively and efficiently perform leak sounding on each valve and fire hydrant. Wachs Utility Services will listen, evaluate and categorize leak sounds so that they can be documented in GIS and provide for prioritized future leak correlation scheduling.

#### *GPS Mapping*

Wachs Utility Services are experts at GPS locating water system assets. We maintain specific operating procedures, employ Trimble GPS receivers, use offset lasers where required, post process all data, review the resulting GPS positions for accuracy and QA/QC each position before it is included in our deliverable database. Our field and information teams work closely in order to deliver accurate, precise and dependable information. We have geo located thousands and thousands of water system assets and will apply all of our best practices in the capture, linkage, quality control and management of GPS locations to the Fort Lauderdale program.

#### *Documentation*

Wachs Utility Services will document the physical, locational and operational attributes on each valve and fire hydrant in the program. We maintain a best practice attributes listing for both valves and fire hydrants and will share this information with Fort Lauderdale for your review. Our best practice listing includes attributes that are not identified in the RFP, and, have proven very useful for many other utilities. Additionally, we have created specific work order categories that will significantly assist Fort Lauderdale in prioritizing, sorting and managing the work orders created.

#### *Deliverable Database*

We have created and delivered hundreds of asset databases for different projects across the country. We understand the importance of not only the specific data, but also the data format so that it can be ingested into existing systems. We maintain a number of structures for databases and will modify our database to be compliant with the City of Fort Lauderdale's existing data structure. As noted above, we suggest adding a number of attributes to the prescribed data set in order to further enhance the value of this program.

## **Additional Program Activities**

### *GIS QA / QC Plan*

Wachs Utility Services will include a detailed QA / QC plan identifying quality checkpoints throughout the program lifecycle. At a minimum we will describe methods for developing sub-meter horizontal accuracy and accurate attribute data.

### *Work Orders*

Wachs Utility Services will create work orders for all required repairs that are needed in order to bring the fire hydrants and valves in the system up to 100% operability. These work orders will be captured and managed in a work order database to be provided by Wachs Utility Services. Work orders will specifically note the discrepancy of the valve and the repair activity required to return the valve to full operability. Work order will contain, at a minimum, the following information:

#### **Fire Hydrants**

- Fire Hydrant ID
- Map number
- Size of fire hydrant
- Manufacturer
- Year
- Specific fire hydrant discrepancy (by category and details)
- Specific repair activity required to return the fire hydrant to full operability

#### **Valves**

- Valve ID
- Map number
- Size of valve
- Specific valve discrepancy (by category and details)
- Specific repair activity required to return the valve to full operability

### *Safety*

Wachs Utility Services will abide by all OSHA safety regulations in the fulfillment of this scope of services. Wachs Utility Services shall provide all traffic control services necessary to insure a safe working environment for the fulfillment of the contract. At a minimum, all work vehicles will have amber warning lights, strobe lights, directional arrow board lights, communications equipment and will clearly identify Wachs Utility Services.

### *Professionalism*

Wachs Utility Services will insure that all activities are conducted in a professional manner. At a minimum, Wachs Utility Services will insure all personnel are in an approved uniform, all field equipment is maintained clean and neat, all trucks are clearly identified with Wachs Utility Service's name and contact phone number and maintains written procedures for field operations and information management processes.

### *Evaluation report*

Wachs Utility Services will evaluate and analyze the results of the program and develop an evaluation report for the City of Fort Lauderdale. This evaluation report will include an analysis of the results of the program, findings, learning's, suggestions and recommendations for City of Fort Lauderdale.

### *Reports*

At a minimum the following deliverable reports will be presented to City of Fort Lauderdale;

- Validated geodatabase
- Annotated maps which depict the program area
- A list of recommended fire hydrant repairs
- A list of recommended valve repairs
- Work orders for these recommended repairs
- A list of recommended fire hydrant replacements
- A list of recommended valve replacements
- A list of recommended areas of focus for leak correlation
- Evaluation report